International effort and covariance vision

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International effort in covariances

Working Party on International Nuclear Data Evaluation Cooperation, WPEC

- Sponsored by the OECD Nuclear Energy Agency, Paris
- Includes all major data projects (US, Europe, Japan, Russia, China)
- Identifies nuclear data deficiencies and problems
- Creates technical subgroups to solve them usually in 2-3 years
- Highly efficient mechanism
- 3 new subgroups addressing covariances

International effort in covariances

SG 20: Covariances in the resonance region, chair **Kawano**, LANL

- Completed in 2005, method developed (retroactive SAMMY, ORNL)

SG 24: Covariances in the fast neutron region, chair **Herman**, BNL

- Started in 2005, develop and test methodology
- Meeting at LANL, Aug 21, 2006 (LANL, Petten, BNL)

SG 26: Data needs for advanced reactors, chair **Salvatores**, CEA & ANL

- Started in 2005, proposed by P. Finck, ANL
- Identify data needs based on sensitivity analysis
- Requests large set of covariances for sensitivity analysis, so far simple estimate of covariances by ANL, more refined data underway by BNL

SG 27: Processing of covariances in resonance region, chair **Dunn**, ORNL

- Started in 2006, develop and test codes for processing

Covariance vision

Presented to DOE-SC, Office of Nuclear Physics, Feb 2006

Proceed in 3 steps, adopt flexible approach, establish strong dialog with users, produce usable results in each step.

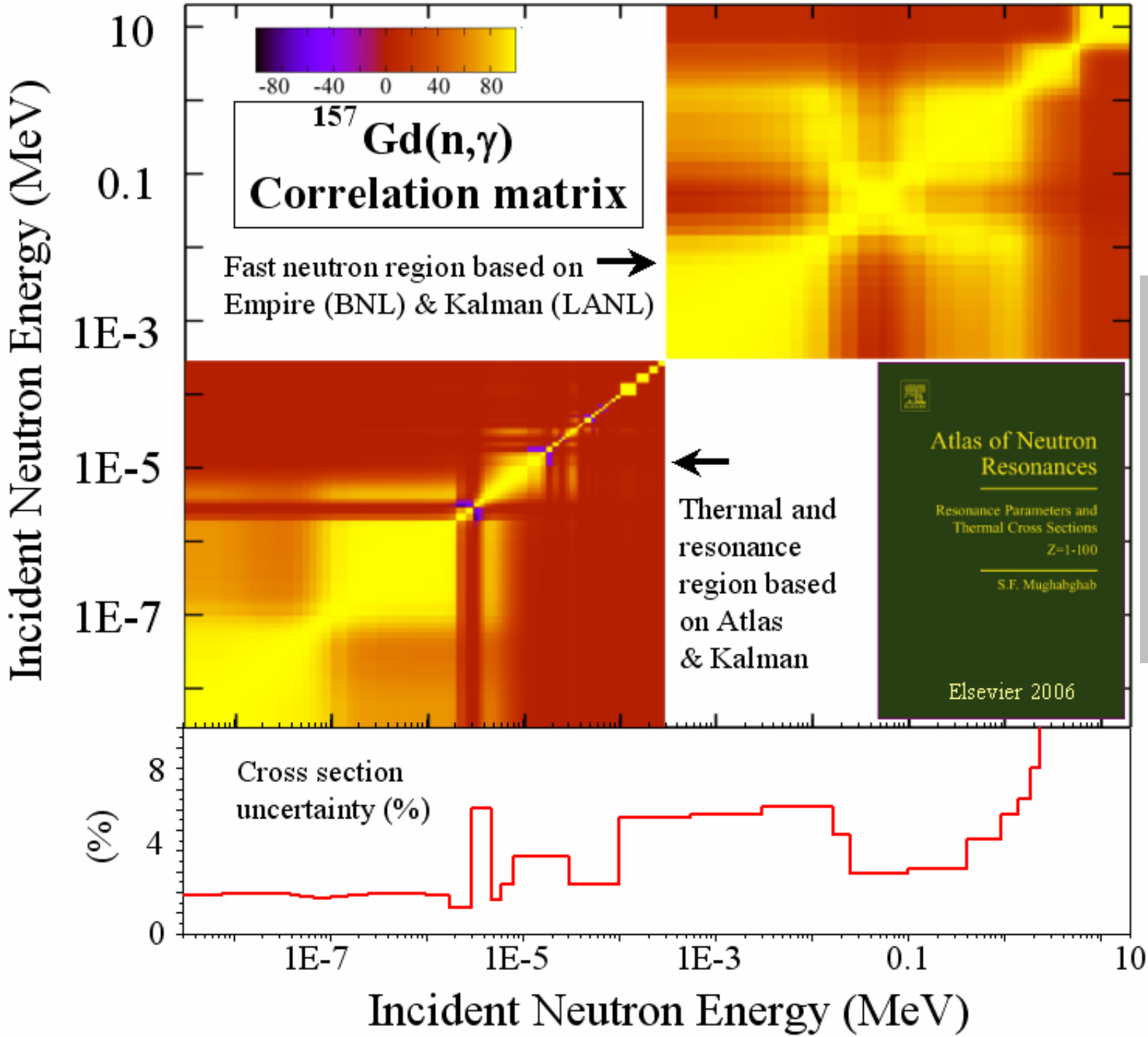
1. **1st year:** Produce crude, yet reasonable covariances for all nuclei in ENDF/B-VII.0 (Chadwick's idea, LANL), make results available via ENDF/A library, establish dialog with users, release in 2007.
2. **Next 2-3 years:** Improve all covariances so that they are of solid quality to justify their inclusion into ENDF/B-VII.1, release in ~2010.
3. **Next 4-5 years:** Produce quality results, include into ENDF/B-VII.2, release ~2015.

Manpower and cost

- 2-4 FTE scientists, 1-2 post-docs
- cost initially ~$0.75 mil, increasing to ~$1.5 mil in last years

Leverage

- Leverage from CSEWG and international effort (NEA Paris, IAEA Vienna)
- Expertise in databases and services, tailored to user needs



Covariance tools are being developed.

Example: BNL-LANL 2006